



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/029,300	12/28/2001	Takao Iwasaki	016907-1355	3070
22428	7590	07/27/2005	EXAMINER	
FOLEY AND LARDNER SUITE 500 3000 K STREET NW WASHINGTON, DC 20007			ROHWER, JACOB P	
			ART UNIT	PAPER NUMBER
			2624	

DATE MAILED: 07/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/029,300

Applicant(s)

IWASAKI, TAKAO

Examiner

Jacob P. Rohwer

Art Unit

2624

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on 28 December 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 25 April 2002 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date <u>28 Dec 2001</u> . | 6) <input type="checkbox"/> Other: _____ |

Drawings

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: Pg. 19 Reference #95 to Fig. 4 and Pg. 23 ST17 in reference to Fig. 5. Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: Fig 1 Reference #128 and Fig 2 Reference #77. Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top

margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

The drawings are objected to under 37 CFR 1.83(a) because they fail to show in the flow chart in Fig 5 what happens when the main control section determines that printing can be performed with sufficient image quality shown in step 6 as described in the specification. Any structural detail that is essential for a proper understanding of the disclosed invention should be shown in the drawing. MPEP § 608.02(d). Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the

Art Unit: 2624

applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Specification

The title of the invention is not descriptive. A new title is required that is clearly indicative of the invention to which the claims are directed.

The following title is suggested: Image Forming Apparatus with Predetermined Copy Quality Set by User or Operator.

The specification is objected to as failing to provide proper antecedent basis for the claimed subject matter. See 37 CFR 1.75(d)(1) and MPEP § 608.01(o). Correction of the following is required: referring to Claim 7, the specification does not disclose an image forming apparatus according to claim 1, wherein the compression rate is changed by said compression section changing an area (region) to be compressed. On page 24 of the specification, it is mentioned that "...the compression method is changed in accordance with instruction and scanning is performed again,..." (Lin 7-8) but this provides no explanation of the matter claimed in claim 7.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2, 5, 6, 7 and 9 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No 6,792,153 to Tsujii, in view of US Patent No 6,917,707

Art Unit: 2624

to Kubota, further in view of US Patent No 6,658,156 to Aritomi, and further in view of US Patent Pub.2002/0057918 A1 to Kojima et al.

Regarding claim 1, Tsujii discloses an image forming apparatus comprising:

a scanner section which reads an original image to output image data (Fig 1 Reference #1, Col 5 Lin 16-19) of various colors; (Col 5, Lin 46-50, Note that if the image to be encoded within the invention consists of a plurality of color components, then the image sensing device such as a scanner used in the invention must output image data of various colors)

a setting section which sets a compression rate of the image data outputted from said scanner section; (Fig 1 Reference #2-4, Fig 11 Reference #503 and #507, Col 5 Lin 20-25, Note that in the aspect of the invention, the image data is compressed by using a discrete wavelet transform (DWT) Col 2 Lin 57-58)

a compression section which compresses the image data outputted from said scanner section at the compression rate set by said setting section; (Fig 11 Reference #501, Col 10 Lin 37-40, the encoder uses the DWT set by the process shown in Fig 1)

a register section which registers the image data outputted from said compression section and the compression rate; (Fig 11 Reference #511, Col 10 Lin 46-49, Note the compression ratio used is included in the image files stored, Col 11 Lin 6-12)

an expansion section which expands the image data registered in said register section on the basis of the compression rate corresponding to the image data; (Fig 11 Reference #509 and Fig #6, Col 12 Lin 29-39)

an image forming section which performs image formation with respect to the image data expanded said expansion section on an image-formed medium; (Fig 11 Reference #510)

Tsujii does not expressly disclose reading means for reading in advance said original image by said scanner section.

However, Kubota discloses a reading means for reading in advance said original image by said scanner section, (Scanning Unit Fig 1 Reference #110, Col 13 Lin 23-25, Note that the apparatus performs a prescan that creates a histogram of the pixel densities)

The Tsujii and Kubota Patents are combinable because they are from the same field of endeavor relating to scanning image data.

At the time of the invention, it would have been obvious for one of ordinary skill in the art to use the prescan idea specified in the Kubota Patent as a means to read the image of the Tsujii Patent in advance.

The motivation/suggestion for doing so would have been to use the histogram of pixel densities determined in the prescan as an effective means of determining compression ratio for the image based on an image resolution set by a threshold pixel density. For example, if the image contains a higher density resolution based on the pixel density variation, a high compression ratio may be used in order to produce an acceptable image.

Furthermore, Tsujii does not expressly disclose a determination section which determines whether or not a predetermined image quality can be obtained at the time of

forming an image on said image-formed medium in said image forming section by a state of said original image read by said reading means and the compression rate set by said setting section.

However, Aritomi discloses a determination section (Col 2 Lin 2) which determines whether or not a predetermined image quality can be obtained (Fig 4 Step 6) at the time of forming an image on said image-formed medium in said image forming section by a state of said original image read by said reading means and the compression rate set by said setting section. (Col 4 Lin 36-41)

Note in Aritomi that the predetermined image quality is referred to as "within a tolerable range of image deterioration", and if compression is within this range, then block compression is ruled effective, as shown in the flow chart of Fig 4. Additionally, effectiveness of compression is judged by comparing the original image and the current block being tested according to a set compression rate, as claimed in the application.

The Tsujii and Aritomi Patents are combinable because they are from the same field of endeavor relating to image processing using compression.

At the time of the invention, it would have been obvious for one of ordinary skill in the art to use the determination means in the Aritomi Patent as a way of determining if the compression ratio and method used in the Tsujii Patent meets a predetermined image quality.

The motivation/suggestion for doing so would have been to save the time that it takes to compress an image with a set compression rate when the resulting quality of

the image being compressed will not turn out to be satisfactory to a desired image quality.

Furthermore, Tsujii does not expressly disclose an inform section which informs an operator that the predetermined image quality cannot be obtained when said determination section determines that the predetermined image quality cannot be obtained.

However, Kojima discloses an inform section which informs an operator that the predetermined image quality cannot be obtained when said determination section determines that the predetermined image quality cannot be obtained. (Fig 4 Reference #22, Pg 5 Para [0062], note the determination section of the invention determines the developer remaining amount and the inform section is the display capable of being seen by the operator or user)

The Tsujii Patent and the Kojima Publication are combinable because they are from the same field of endeavor relating to forming an image on an image-forming medium.

At the time of the invention, it would have been obvious for one of ordinary skill in the art to use the inform section of the Kojima Publication in order to inform the user or operator of the determination that the predetermined quality specified in the combination of Aritomi and Tsujii cannot be obtained.

The motivation/suggestion for doing so would have been to allow the user or operator to make adjustments so that a desired image quality can be obtained, while

saving time by avoiding the image processing that potentially would produce an unsatisfactory image quality.

Therefore, it would have been obvious to combine the Tsujii, Kubota, and Aritomi Patents and the Kojima Patent Publication in order to obtain the invention in claim 1.

Regarding claim 2, which depends from claim 1, Tsujii further discloses a changing means for changing the compression rate by using said setting section (Col 2 Lin 53-56) when said inform section informs that the predetermined image quality cannot be obtained. (Col 15 Lin 1-7 tells how a compression ratio is assigned to an area in order to obtain a designated image quality. This shows a response by the user that occurs with the incorporation of the inform section of Kojima with the Tsujii Patent as specified in claim 1)

Regarding claim 5, which depends from claim 1, Kubota further discloses an apparatus wherein said reading means reads density variation on the original document. (Col 2 Lin 35-37, note that density variation must be read in order to produce a pixel density histogram)

Regarding claim 6, which depends from claim 5, Kubota further discloses an apparatus wherein said determination section determines whether or not an image of said original document is fine by the density variation on the original document read by said reading means. (Col 2 Lin 35-37)

Note, that whether or not an original document is fine or not can be determined by the number of pixels with a density value above a threshold density value. Kubota discloses producing a histogram of variation of pixel densities, from which it can be

Art Unit: 2624

determined if an image is “fine” in regard to a threshold pixel density set by an operator or user. This, combined with the fact that the determination section specified in claim 1 compares the original image with the compression block being tested with a current compression ratio, shows that an original image can be determined to be fine based on the density variation.

Regarding claim 7, which depends from claim 1, Tsujii further discloses an image forming apparatus wherein the compression rate is changed by said compression section changing an area (region) to be compressed. (Fig 13 Reference #2011, Col 14 Lin 34-39, Col 15 Lin 1-8)

The region designation unit allows for compression rates to be modified in accordance with a desired image quality for one region of the image. This unit allows for the compression rate to be changed, when processing an entire image, in order to attain a better image quality in the region of interest compared to the other areas of the image.

Regarding claim 9, which depends from claim 1, Tsujii further discloses an apparatus wherein said register section registers the image data and its compression rates in separate mediums. (Col 10 Lin 67 and Col 11 Lin 1-5)

Note that the image file includes the current compression ratio as an attribute (Col 11 Lin 11). The reference discloses that the image file manager may refer to attribute files held in a storage device inside the apparatus or may be stored in an external storage device. This discloses that the image data can be stored in an internal

storage device (Fig 11 Reference #511, Col 10 Lin 46-47) and its image file and compression rate and are stored in an external storage device or vice versa.

Claims 3, 4, and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tsujii, Kubota, Aritomi, and Kojima as specified in claim 1 above, and further in view of US Patent No 6,567,544 to Kanno et al.

Regarding claim 3, which depends from claim 1, the combination of Tsujii, Kubota, Aritomi, and Kojima does not expressly disclose an image forming apparatus according to claim 1, wherein the image data of various colors are red, green and blue image data and said image forming apparatus further comprising a color conversion section for converting said red, green and blue image data into yellow, magenta, cyan and black image data.

However, Kanno discloses an image forming apparatus wherein the image data of various colors are red, green and blue image data (Col 5 Lin 53-56) and said image forming apparatus further comprising a color conversion section for converting said red, green and blue image data into yellow, magenta, cyan and black image data. (Fig 3A Reference #157, Col 9 Lin 49-54)

The combination of Tsujii, Kubota, Aritomi, and Kojima as specified in claim 1 and the Kanno Patent are combinable because they are from the same field of endeavor relating to forming an image on an image-forming medium.

At the time of the invention, it would have been obvious for one of ordinary skill in the art to use the color conversion unit specified in the Kanno Patent as part of the

Art Unit: 2624

image processing used to form an image as specified in the combination of Tsujii, Kubota, Aritomi, and Kojima.

The motivation/suggestion for doing so would have been to allow the printers to produce the image according to the standardized ink colors used within the art of printing, those colors being yellow, cyan, magenta, and black.

Therefore, it would have been obvious to combine the combination of Tsujii, Kubota, Aritomi, and Kojima and the Kanno Patent in order to obtain the invention in claim 3.

Regarding claim 4, which depends from claim 3, Kanno further discloses an image forming apparatus wherein said image forming section (Fig 1 Reference #2 Col 5 Lin 58) comprises rotating photosensitive drums (Fig 1 Reference 61y, 61m, 61c, 61k Col 6 Lin 15-17) and image forming units for yellow, magenta, cyan and black which transfer yellow, magenta, cyan and black image data on an image-formed medium. (Fig 1 Reference 10y, 10m, 10c, 10k, Col 5 Lin 58-63, Col 6 Lin 54-56)

The motivation for doing this would be to allow for the production of a hard copy of the image data to be printed or formed.

Regarding claim 8, which depends from claim 1, please see rational provided in the rejection of claim 3.

Claim 10 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Tsujii, Kubota, Aritomi, and Kojima as specified in claim 1 above, and further in view of US Patent No 5,991,515 to Fall et al.

Regarding claim 10, which depends from claim 1, in Tsujii although a compression rate is set, Tsujii does not expressly disclose that said setting section sets a compression method, and compression or expansion of the image data is performed on the basis of the compression rate and the compression method.

However, Fall discloses an apparatus wherein a compression method (Col 3 Lin 16-19) is selected, and compression or expansion of the image data is performed on the basis of the compression rate and the compression method. (Col 3 Lin 10-14)

The combination of Tsujii, Kubota, Aritomi, and Kojima as specified in claim 1 and the Fall Patent are combinable because they are from the same field of endeavor relating to image processing.

At the time of the invention, it would have been obvious for one of ordinary skill in the art to allow for the use of a plurality of compression methods as specified in the Fall Patent on the image data to be processed according to the combination of Tsujii, Kubota, Aritomi, and Kojima.

The motivation/suggestion for doing so would have been to allow for the use of a compression methods that are optimized for each type of data being copied, so that storage space for the image data is efficient and image quality is maintained. (Fall Col 3 Lin 17-23)

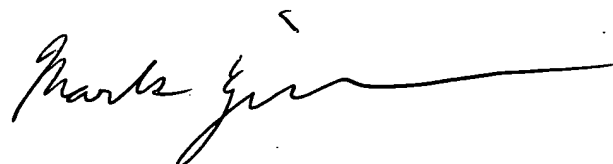
Therefore, it would have been obvious to combine the combination of Tsujii, Kubota, Aritomi, and Kojima and the Fall Patent in order to obtain the invention in claim 10.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Jacob P. Rohwer whose telephone number is 571-272-5509. The examiner can normally be reached on M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Moore can be reached on 571-272-7437. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



MARK ZIMMERMAN
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2600